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EXAMINER

PIZIALI, ANDREW T

ART UNIT PAPER NUMBER

1771

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/609,074

Applicant(s)

DHAWAN ET AL.

Examiner

Andrew T. Piziali

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-96 is/are pending in the application.
4a) Of the above claim(s) 5-9 and 22-96 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-4 and 10-21 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species 1, and Sub-Species 1, in the reply filed on 4/29/2005 is acknowledged. The applicant listed claims 1-4, 10-21, 34, 44-47, 87-89 and 94 as readable thereon, but claims 34, 44-47, 87-89 and 94 are not readable on the elected Species and Sub-Species. Claims 34, 44-47, 87-89 and 94 are drawn to a woven structure wherein the conductive yarns are twisted together. The elected Species (Figure 1) and Sub-Species (Figure 3) is drawn to a woven structure wherein the yarns are parallel to each other but are separated from each other by non-conducting yarns (see Figure 3 and see page 5, lines 9-12 and page 15, lines 16-22 of the current specification). Therefore, claims 1-4 and 10-21 have been elected while claims 5-9 and 22-96 are withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 2,073,933 to Herbst.

Regarding claims 1 and 4, Herbst discloses a coaxial conductive yarn structure

Art Unit: 1771

comprising a first conductive yarn (5) extending in a first direction and having a plurality of first conductive strands being twisted together, a second conductive yarn (6) having a plurality of second conductive strands being twisted together, the second conductive yarn being wrapped around the first conductive yarn in a second direction transverse to the first direction and substantially covering the first conductive yarn, and at least one insulating layer (20 and/or 23) for electrically isolating the first and second conductive yarns from each other (see entire document including column 2, lines 3-22 and Figure 2).

Regarding claim 4, Herbst discloses that the insulating layer may be substantially uniform in thickness (Figure 2).

4. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 1,745,096 to Jayne.

Regarding claims 1 and 4, Jayne discloses a coaxial conductive yarn structure comprising a first conductive yarn (see Figure 3) extending in a first direction and having a plurality of first conductive strands (1, 1' and 3) being twisted together, a second conductive yarn (4) having a plurality of second conductive strands being twisted together, the second conductive yarn being wrapped around the first conductive yarn in a second direction transverse to the first direction and substantially covering the first conductive yarn, and at least one insulating layer (see coatings on 4, 1, 1' and 3) for electrically isolating the first and second conductive yarns from each other (see entire document including page 2, column 1, lines 34-51 and the paragraph bridging pages 2 and 3).

Regarding claim 4, Herbst discloses that the insulating layer may be substantially uniform in thickness (see Figure 3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 2,073,933 to Herbst as applied to claims 1 and 4 above, and further in view of USPN 3,795,760 to Raw et al. (hereinafter referred to as Raw).

Regarding claim 2, Herbst discloses that the first and second strands are conductive, but Herbst does not mention any specific materials. Herbst is silent with regards to specific materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the radio frequency cable art (column 1, lines 6-17) to use metal or an alloy as a conductor (see entire document including column 1, lines 18-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the conductors from metal or an alloy motivated by the expectation of successfully practicing the invention of Herbst.

Regarding claim 3, Herbst is silent with regards to specific insulating materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the radio frequency cable art (column 1, lines 6-17) to use insulating materials such as PVC, rubber, or the like (column 3, lines 24-68). Therefore, it would have been obvious to one having ordinary skill in the art at the

Art Unit: 1771

time the invention was made to make the insulating material from PVC, rubber, or the like motivated by the expectation of successfully practicing the invention of Herbst.

7. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 1,745,096 to Jayne as applied to claims 1 and 4 above, and further in view of USPN 3,795,760 to Raw.

Regarding claim 2, Jayne discloses that the first and second strands are conductive, but Jayne does not mention any specific materials. Jayne is silent with regards to specific materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the radio frequency cable art (column 1, lines 6-17) to use metal or an alloy as a conductor (see entire document including column 1, lines 18-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the conductors from metal or an alloy motivated by the expectation of successfully practicing the invention of Jayne.

Regarding claim 3, Jayne is silent with regards to specific insulating materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the radio frequency cable art (column 1, lines 6-17) to use insulating materials such as PVC, rubber, or the like (column 3, lines 24-68). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the insulating material from PVC, rubber, or the like motivated by the expectation of successfully practicing the invention of Jayne.

Art Unit: 1771

8. Claims 10-12 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,906,004 to Lebby et al. (hereinafter referred to as Lebby) in view of USPN 2,073,933 to Herbst in view of USPN 4,552,989 to Sass.

Regarding claims 10-12 and 15-21, Lebby discloses a woven textile fabric that may be used to interconnect portable electronics (AC source) or serve as an antenna for signals (column 2, lines 25-39), comprising conductive fibers running in parallel direction (see entire document including column 3, lines 37-62). Lebby discloses that the fibers may be any conductive fiber that is capable of transmitting a current (paragraph bridging columns 5 and 6), but Lebby does not specifically mention the claimed conductive yarn structure.

Herbst discloses a coaxial conductive yarn structure comprising a first conductive yarn (5) extending in a first direction and having a plurality of first conductive strands being twisted together, a second conductive yarn (6) having a plurality of second conductive strands being twisted together, the second conductive yarn being wrapped around the first conductive yarn in a second direction transverse to the first direction and substantially covering the first conductive yarn, and at least one insulating layer (20 and/or 23) for electrically isolating the first and second conductive yarns from each other (see entire document including column 2, lines 3-22 and Figure 2). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the conductive fibers of Lebby in any known conductive fiber structure, such as the conductive yarn structure taught by Herbst, because Herbst discloses that the cable is capable of distributing current and because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability.

Art Unit: 1771

Herbst discloses that the inner conductor (5) may be connected to ground while the outer conductor (6) receives the high potential (page 1, column 2, lines 10-37), but Herbst does not specifically mention connecting the inner conductor (5) to the higher potential while connecting the outer conductor (6) to ground. Sass discloses that it is known in the art to connect the outer conductor of a coaxial structure to ground while connecting the inner conductor to the higher potential (see entire document including the paragraph bridging columns 2 and 3). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to connect a ground to either of the two conductors, because both conductors are capable of carrying a current and because it is within the general skill of a worker in the art to select a ground wire on the basis of its suitability.

Regarding the claimed blocking of electromagnetic fields, considering the substantially identical woven electrical network taught by the applied prior art, compared to the claimed woven electrical network, it appears that the property would be inherent.

Regarding claims 11-12, Herbst discloses that inner and outer conductive yarns each include a plurality of conductive twisted strands (see Figure 2 and page 2, column 1, lines 3-22).

Regarding claim 15, Herbst discloses that the insulating layer may be substantially uniform in thickness (see Figure 3).

Regarding claims 16-17, Lebby discloses that the first and second conductive yarns are spaced from each other in the fabric by a predetermined distance (column 5, lines 35-60). Lebby does not mention specific spacing distances, but Lebby does disclose that spacing of the fibers is dependent on the exact usage (column 5, lines 35-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the distance between yarns, as

Art Unit: 1771

taught by Lebby, because it is understood by one of ordinary skill in the art that the distance between fibers determine properties such fabric weight and breathability, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 18-19, Lebby discloses that a plurality of nonconductive yarns may be woven in the fabric (column 3, lines 37-62).

Regarding claim 19, Lebby does not mention specific non-conductive yarn materials, but Lebby does disclose that the non-conductive overcoating for the fibers may comprise a plastic material such as polyimide (column 4, lines 8-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the non-conducting yarns from any suitable non-conductive material, such as polyimide or the like, because it is within the general skill of a worker in the art to select a known material on the basis of its suitability.

Regarding claims 20-21, Lebby discloses that the conductive yarns may comprise the warp or weft yarns as long as they separated by non-conductive fibers (see column 3, lines 36-62 and Figures 1 and 3).

9. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,906,004 to Lebby in view of USPN 2,073,933 to Herbst in view of USPN 4,552,989 to Sass as applied to claims 10-12 and 15-21 above, and further in view of USPN 3,795,760 to Raw.

Regarding claim 13, Herbst discloses that the first and second strands are conductive, but Herbst does not mention any specific materials. Herbst is silent with regards to specific materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the

Art Unit: 1771

radio frequency cable art (column 1, lines 6-17) to use metal or an alloy as a conductor (see entire document including column 1, lines 18-55). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the conductors from metal or an alloy motivated by the expectation of successfully practicing the invention of Herbst.

Regarding claim 14, Herbst is silent with regards to specific insulating materials, therefore, it would have been necessary and thus obvious to look to the prior art for conventional materials. Raw provides this conventional teaching showing that it is known in the radio frequency cable art (column 1, lines 6-17) to use insulating materials such as PVC, rubber, or the like (column 3, lines 24-68). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the insulating material from PVC, rubber, or the like motivated by the expectation of successfully practicing the invention of Herbst.

Conclusion

10. The following patents are cited to further show the state of the art with respect to coaxial conductive yarns:

USPN 2,387,783 to Tawney

USPN 2,854,639 to Nordlin

USPN 4,719,320 to Strait, Jr.

Art Unit: 1771

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

9-12 5/25/05
ANDREW T. PIZIALI
PATENT EXAMINER